PEARL RIVER WATERSHED
COMPARISON OF 2011 AND 2003
STUDY COST ESTIMATES

1. Existing data from previous investigations will be used to the maximum extent possible; however, much work remains to be accomplished to prepare a document recommending a project for implementation as a Federal project. The following paragraphs explain the major work items comprising the current study cost estimate (2011) and the study cost estimate (2003) that produced the February 2007 Pearl River Watershed Preliminary Draft Report. Information on each was summarized from the study's Project Management Plan. Costs shown do not include any contingency costs to cover any study unknowns that developed during the study.

2. Plan Formulation/Project Management (2011 - $286,000 vs 2003 - $395,000). Funds are needed primarily to cover the hired labor needs and associated costs of the U.S. Army Corps of Engineers, Vicksburg District, and sponsor's Project Managers over the study's estimated duration. Sponsor costs include participation in the Executive Committee which is provided as work-in-kind (WIK). The final accounting completed for the previous study identified approximately $90,000 for the sponsor's participation in the Executive Committee.

3. Public Involvement (2011 - $40,000 vs 2003 - $141,000). Costs are estimated to be significantly less than the previous study and are currently divided equally between the sponsor and the Vicksburg District. The sponsor's portion can be provided as WIK. Division of work between the Corps and sponsor for this work item is negotiable, but must meet all Federal laws, regulations, and policies.

4. Agency Technical Review (ATR) and Independent External Peer Review (IEPR) (2011 - $250,000 vs 2003 - $0). These activities were not included in the previous study. Subsequent to Hurricane Katrina, the level of peer review increased significantly for feasibility reports recommending improvements reducing risk of flooding. In particular, an ATR of study reports must be performed by other Corps District offices. An IEPR is also required for controversial projects and/or projects exceeding $45 million per the Water Resources Development Act of 2007. The IEPR is accomplished completely outside the Corps and may include organizations such as the National Academy of Science, universities, industry, or some combination thereof. In view of project construction costs expected to well exceed the $45 million threshold for any plan of improvement recommended for the metro Jackson area, an IEPR will be required. These costs are for the ATR and IEPR teams only. The IEPR costs are fully Federal funded up to a maximum of $500,000. Costs for ATR and IEPR comment resolution are included in the cost estimates provided by the various Corps offices.

5. Collection of Economic Survey Data (2011 - $250,000 vs 2003 - $0). No new survey data were included in the previous study. These data will be used in the economic analysis. The Mobile Light Detection and Ranging surveying process will be used for collecting these data.

This information includes physical location, size, and first-floor elevation of structures in the study area. This information will be integrated with information from the tax assessor's office to develop structure value. These data have many useful applications in addition to flood damage analysis for community services such as fire fighting and other emergencies and will be provided to the sponsor for their use.

6. Economic Analysis of Alternatives (2011 - $161,000 vs 2003 - $99,000). Previous economic analyses conducted were based on structure inventory data taken in the early 1990s. Because of extensive and rapid development in the area, an updated evaluation of development and improvements in the study area is required. An economic analysis based on a current structure inventory is vital to the successful completion of a feasibility study. The economic analysis is typically one of the more heavily scrutinized analyses in ATR and IEPR. To satisfy ATR and IEPR requirements, the economic analysis must be based on current conditions in the flood plain.

7. Environmental Analysis of Alternatives (2011 - $396,000 vs 2003 - $503,000). Data collected in the previous study will be used to perform the Fisheries Evaluation, Habitat Evaluation Procedures, and Wetland Assessment; therefore, study costs for this work are less than the previous study. Similar evaluations were conducted in the previous study for the alternatives under study at that time. Significant analysis and coordination remain to be accomplished by the U.S. Fish and Wildlife Service (FWS), Environmental Protection Agency, and other agencies. Funds will be transferred to FWS for the required Fish and Wildlife Coordination Act Report, and the Environmental Impact Statement will have to be completed.

8. Cultural Resources (2011 - $81,000 vs 2003 - $218,000). These investigations will make extensive use of the cultural resources survey previously completed; therefore, study costs for this work are less than in the previous study effort. However, previous archeological studies determined the "low probability" area surveyed in the 1993 Pearl River Basin Development District cultural resources survey must be resurveyed to adequately determine the presence of historic properties. The 2006 LeFleur Lakes cultural resources survey recommends that deep geomorphological surveys be conducted to determine the presence of deeply buried historic properties that could be inundated by project activities. Study costs for this work item could be less if Phase II excavation is not required.

9. Hydraulic Analysis (2011 - $287,000 vs 2003 - $154,000). Costs for this work item are significantly higher due to the increased number of variations of a one-lake alternative expected to be evaluated (five weir heights, three levee alternative heights, and a combination lake and levee plan). Many other analyses such as plan formulation, economic, and environmental analyses are based on hydraulics; therefore, a current hydraulic analysis is essential. No studies of the One-Lake plan have been conducted. Evaluation of several lake elevations is needed to determine the lake's impacts on adjacent properties such as LeFleur's Bluff State Park. Different pool elevations are required to be investigated to determine which elevation provides the greatest flood damage reduction. A minimum of three different levee heights is required to accurately identify the National Economic Development (NED) plan. Identifying the NED plan is required in Corps feasibility studies whether the NED plan or a Locally Preferred Plan, such as the One-Lake plan, is recommended for implementation.

10. Channel Surveys to Support Hydraulic Analyses (2011 - $175,000 vs 2003 - $0). The previous study used primarily existing survey data taken in the early 1990s as part of the original levee study. In the nearly 20-year time period since channel surveys were originally taken, significant changes in the Pearl River channel may have occurred which would impact the hydraulic analysis of alternatives. An accurate hydraulic analysis is a key component of the feasibility study and plays an important part in both the economic and environmental analyses. The economic analysis is typically one of the more heavily scrutinized analyses during ATR and IEPR and must be based on a sound current hydraulic analysis.

11. Water Quality Analysis (2011 - $195,000 vs 2003 - $113,000). Increased costs are in part due to the previous investigation that found locations such as Creosote Slough that needed more indepth analysis. Also, water quality data previously collected and analyzed would be over 10 years old if used in further studies, assuming approximately 2 to 3 years to get a draft report prepared for peer review. A current water quality analysis based on alternatives currently under investigation is needed. A report based on old data will not satisfy the ATR and IEPR requirements.

12. Hazardous, Toxic, and Radiological Waste Assessment (2011 - $35,000 vs 2003 - $25,000). Costs for the HTRW are approximately the same as the previous study with some cost increases due to a general rise in prices. As noted above under water quality, some sites were located during the previous investigation that need further study and analysis. Most of the new study will be directed at investigating the approximate footprint of the One-Lake plan and any revised levee plan alignments. Data from the previous assessment will be used to the maximum extent possible.

13. Geotechnical Analysis (2011 - $99,000 vs 2003 - $224,000). Existing soil boring information will be used to the maximum extent possible resulting in the estimated study being approximately 50 percent less than the previous study. Cost for this activity could be more if the location of the weir/dam for the One-Lake plan is moved significantly from the site of the LeFleur Lakes lower lake weir/dam studied. Also, if realignment of previously proposed levees changes significantly, some new soil borings might be required, increasing the costs for this activity.

14. Ross Barnett Dam Assessment (2011 - $0 vs 2003 - $15,000). This task was completed for the LeFleur Lakes plan in the 2007 report. The One-Lake plan is not expected to impact Ross Barnett Dam. No additional costs are anticipated for this work item.

15. Structure Design (2011 - $333,000 vs 2003 - $238,000). Costs for this activity are higher due to the likelihood that some levees will have to be replaced with floodwalls and/or combination of levee and floodwall in some areas due to improvements being located in the previously proposed levee alignments right-of-way (ROW). Several alternatives (lake elevations and levee heights) will have to be investigated to develop a recommended plan, with each one requiring feasibility-level design work in order to develop estimated project costs for use in the economic analysis.

16. Architectural, Civil, and Mechanical Design (2011 - $89,000 vs 2003 - $51,000). Study cost for this work item in the previous study was for evaluation of pump stations projected to be needed in the Town and Lynch Creeks areas to remove water from behind the levee needed with the LeFleur Lakes plan. If studies indicated that a pump station(s) is not needed, these funds will not be expended.

17. Levee Design (2011 - $68,000 vs 2003 - $45,000). Levee design in the previous study was limited to a minimal design update based on the National Economic Development (NED) plan. In view of recent improvements being constructed within the proposed alignments ROW time since levees were first proposed, a significant update of the levee plan is expected to be required.

18. Develop Estimated Project Costs (2011 - $133,000 vs 2003 - $65,000). Costs for this work activity are significantly higher than for the previous study due to the increase in number of variations of the levee and one-lake alternatives for which costs must be developed. Up to five different weir dam elevations and three different levee heights are expected to be investigated to determine the NED plan and develop the fully funded cost estimate for the recommended plan. The previous study only developed one cost estimate for the LeFleur Lakes plan and updated the formerly proposed NED levee plan for cost price level increases that occurred between 1996 and 2007.

19. Cost Risk Analysis (2011 - $113,000 vs 2003 - $0). This work item was not required for the previous analysis, but is now a requirement. Cost risk analysis is the process of identifying and measuring the cost impact of project uncertainties on the estimated total project cost. It is accomplished as a joint analysis between the cost engineer and the designers or appropriate Project Delivery Team member that have specific knowledge and expertise on all possible project risks. During the feasibility phase, a cost risk analysis shall be performed once the recommended plan is identified. The results of the cost risk analysis will be included in the feasibility report.

20. Identify and Cost Relocations (2011 - $54,000 vs 2003 - $16,000). Further studies will examine the existing data base of improvements, such as utilities and similar improvements identified in the previous study that would need to be relocated with implementation of a recommended plan. The footprint of a One-Lake plan is significantly different from the Two-Lake plan previously studied, and different relocations will be involved. Studies will verify the location and costs for the previously known relocation requirements and investigate the study area to determine if other improvements requiring relocation have since been constructed.

21. Surveying and Mapping (2011 - $409,000 vs 2003 - $75,000). This work item is significantly larger than the previous study. Improvements have been constructed in the ROW of some of the proposed levees and will require new surveys. Actual costs for this activity could be less, depending upon the extent of levee realignment required. Some field survey work is also expected for a One-Lake plan. Estimated costs represent a worst case and, depending upon the levee realignment, actual costs could be less.

22. Real Estate Investigations (2011 - $245,000 vs 2003 - $192,000). Real estate investigations are somewhat greater than the previous study. The One-Lake plan has a different footprint than the LeFleur Lakes (Two-Lake) plan. In view of the different footprint, very little of the real estate information from the previous study is usable. The realignment of the levee plans will also require new real estate costs be developed for those plans.

23. Wetland Determination (2011 - $17,000 vs 2003 - $25,000). The wetland determination completed for the LeFleur Lakes plan will be updated for the One-Lake plan.